HYPOCHLORITE OXIDATION OF MODEL COAL COMPOUNDS: STRUCTURAL AND MECHANISTIC INFERENCES. G. L. Tingey, J. R. Morrey, J. A. Campbell, and J. A. Franz, Battelle Memorial Institute, Pacific Northwest Laboratories, Richland, WA. 99352

The traditional view that coal consists primarily of varying degrees of aromatic structure has recently been challenged by Chakrabartty, et al., (Fuel, 53, 240 (1974)), who conclude from results of the hypochlorite oxidation of coal and from a study of hypochlorite oxidation of model compounds (from which aromatic and polynuclear aromatic carbon-carbon bonds are generally found to be inert to oxidation) that extensive aromatic structure cannot represent the structure of certain coals. We present the results of reactions of the hypochlorite oxidant with polynuclear aromatic compounds neglected in the above mentioned study to reach the opposite conclusion, i.e., that suitably substituted polynuclear aromatics are indeed labile to oxidation, and that extensive aromatic structure cannot be ruled out on the basis of results of hypochlorite oxidation. The results of hypochlorite oxidations of pyrene hydroquinone and quinone model systems and several coals are presented, and mechanisms for the mild dissolution of aromatic structure are discussed.